

## **Appendix K**

**Harris Environmental Group, Inc.  
Supplemental Information for the  
Final Biological Assessment  
TEP Proposed Sahuarita-Nogales  
Transmission Line Project  
115-kV Gateway to Valencia Substations  
Interconnection (HEG 2004d)**

# **Supplement Information for the Final Biological Assessment of the Tucson Electric Power Sahuarita to Nogales Transmission Line, Western Corridor**

**PREPARED FOR:**



A UniSource Energy Company

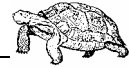
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**15 March 2004**



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## EXECUTIVE SUMMARY

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This report is intended provide supplemental information for Tucson Electric Power's (TEP) ongoing consultation with the U.S. Fish & Wildlife Service (USFWS) on the Sahuarita to Nogales Transmission Line, Western Corridor. Specifically, this supplemental information is in response to (1) an expansion in the scope of the project and (2) a request from the USFWS for additional information.

The project scope expansion is the proposed 115kV transmission line connecting the proposed Gateway substation to the existing Valencia substation. We evaluated potential effects of the project on the three federally listed species that could potentially occur in the area and concluded that the effects determination and proposed mitigation, as discussed in the Final Biological Assessment (BA)(Harris Environmental Group, Inc.2003), remain unchanged.

The USFWS's request involves the amount of potential disturbance in proposed Mexican spotted owl (MSO) critical habitat along the Western Corridor of the Sahuarita to Nogales transmission line. Based on a review of engineering data provided by TEP and information in the Final Roads Analysis conducted for the Coronado National Forest (URS 2003), the proposed Western Corridor would permanently disturb 9.69 acres and temporarily disturb 46.85 acres of land within proposed MSO critical habitat.



## 1. EXPANSION OF PROJECT SCOPE

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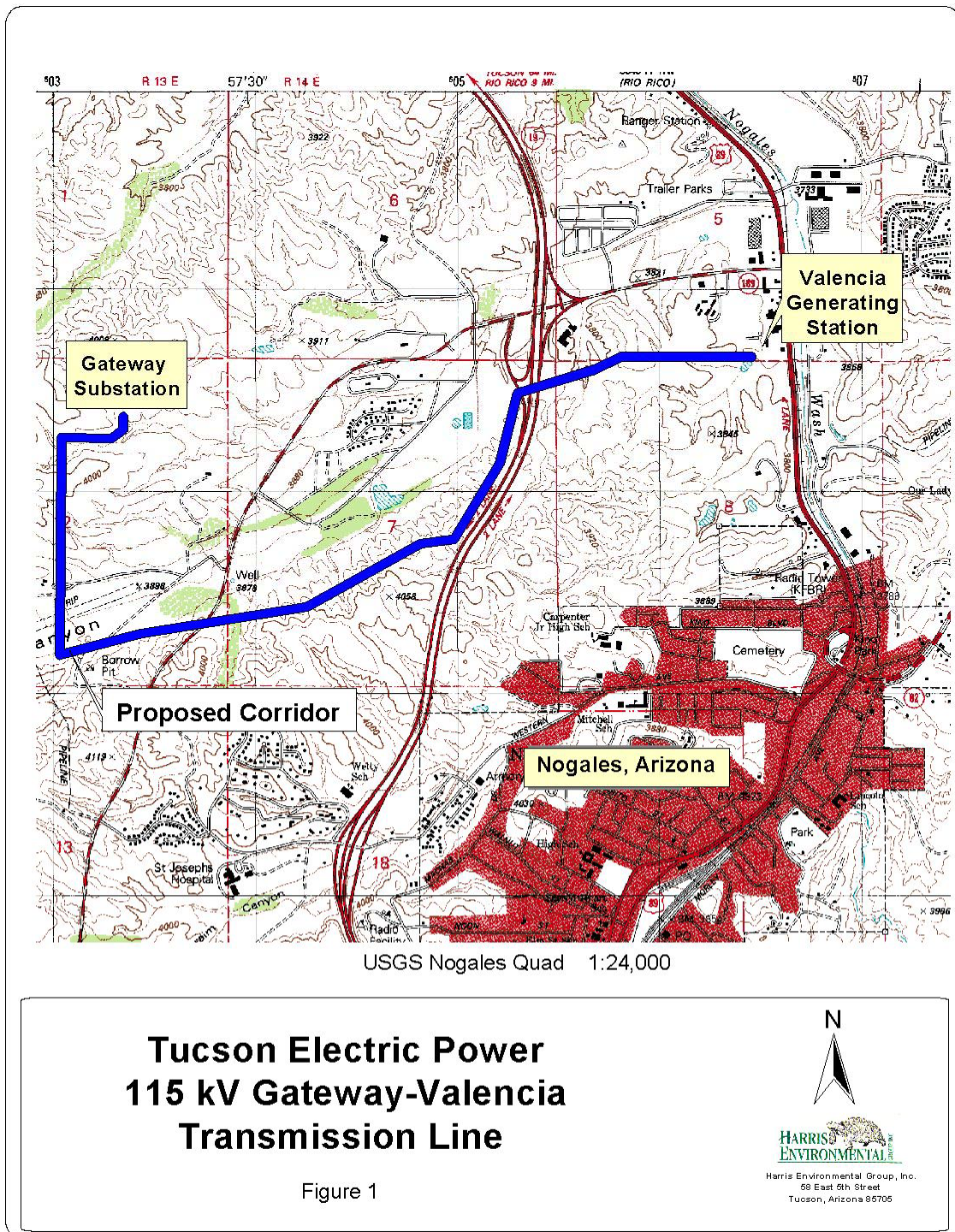
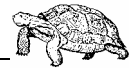
### Project Description

In August 2003, UniSource Energy Services (TEP's parent company) acquired the Nogales-area electric system as part of a purchase of utility assets from Citizens Communications Company. In order to connect the proposed Gateway substation to Citizens' existing Valencia generating station, TEP proposes to construct a 115kV transmission line between the two substations. The Valencia generating station provides approximately 50 MW of standby resources and is directly interconnected with the distribution system serving the City of Nogales and surrounding areas. The proposed 115kV transmission line corridor is approximately 3 miles in length and is located in the north side of the City of Nogales (Figure 1). Specifically, it is located within Section 12 of Township 24 South, Range 13 East and Sections 5, 7, and 8 of Township 24 South, Range 14 East, Gila and Salt River Meridian. Additional technical information regarding the construction of the 115kV can be found in TEP/Citizens' Joint Application for Certificate of Environmental Compliance filed before the Arizona Corporation Commission (March 2001).

### Project Area

The proposed 115kV transmission line corridor ranges in elevation from approximately 3,750 to 4,000 feet above mean sea level. Topography ranges from relatively flat to rolling hills and ridges. The proposed project area borders the western edge of an commercial/industrial area, and continues south to Mariposa Canyon, then turns east and crosses Highway 189, turns east-northeast to the western edge of Interstate 19 (I-19), parallels I-19 for approximately 0.5 miles, then crosses I-19 and turns east for approximately 0.5 miles. Disturbances in the proposed project area and vicinity include produce warehouses, other commercial development and I-19.

Vegetation in the proposed project area is representative of the ecotone between the semidesert grassland and oak woodland vegetation communities (Brown 1994) (Figure 2). Common conspicuous perennial plant species included: velvet mesquite (*Prosopis velutina*), Emory oak (*Quercus emoryi*), Mexican blue oak (*Quercus oblongifolia*), agave (*Agave* sp.), soaptree yucca (*Yucca elata*), and sotol (*Dasylirion wheeleri*). A complete list of plant species observed within the proposed project area (25 February 2004) is presented in Appendix A.







**Figure 2.** Vegetation within the proposed TEP Gateway-Valencia 115k Transmission Line, Nogales, Arizona (25 February 2004).

### Species Identification

The USFWS list of threatened, endangered, proposed, and candidate species for Santa Cruz County, Arizona, was reviewed by a qualified biologist to determine species potentially occurring in the proposed project area. Additionally, a walking survey of the corridor was conducted by a team of biologists on 25 February 2004.

Based on the list review and site visit, three endangered species have the potential to occur in the proposed project area; the cactus ferruginous pygmy-owl, Pima pineapple cactus, and lesser long-nosed bat. Species included in the USFWS list, but excluded from evaluation are addressed in Appendix B.

### Species Evaluation

#### **Pima Pineapple Cactus (*Coryphantha scheeri* var. *robustispina*)-Endangered**

Pima pineapple cacti (PPC) are known to occur within the semidesert grassland and Sonoran desertscrub biotic communities, generally at elevations between 2,300 and 5,000 feet (USFWS 1998, Phillips and Phillips 1981, Benson 1982). In southeastern Arizona, the known range lies within Santa Cruz and Pima counties and is generally bounded to



the east by the Santa Rita Mountains, to the west by the Baboquivari Mountains, and to the north by the south side of Tucson (Ecosphere Environmental Services 1992).

Because the proposed project site lies within the known range of this species, we conducted a survey of the proposed corridor for PPC on 25 February 2004. We followed USFWS survey protocol (Roller 1996) modified to a single survey pass of the entire proposed project area. This protocol requires that surveyors walk in parallel transects no more than 7 meters apart, such that there is an overlapping view of the ground.

### **Effects Determination**

No PPC were located during our survey and no impacts to this species beyond those discussed in the Final BA are anticipated. Therefore, the effects determination and proposed mitigation as discussed in the Final BA remain unchanged.

### **Cactus ferruginous pygmy-owl (*Glaucidium brasilianum cactorum*)-Endangered**

Cactus ferruginous pygmy-owls (CFPO) nest in cavities of larger trees (typically defined as a tree with a trunk at least 6 in [15 cm] diameter at breast height [DBH]) or large columnar cactus. CFPO have been documented in three vegetation communities in Arizona, including (1) Sonoran riparian woodland associations, such as cottonwoods, willows, mesquites, ash, or other trees growing along watercourses; (2) Sonoran desertscrub, particularly areas containing saguaro cactus; and (3) semidesert grassland with drainages containing mesquite, hackberry, cottonwood, willow, ash, etc. Throughout its range, CFPO occur at low elevations, generally below 4,000 ft (1,219 m).

The proposed project corridor crosses marginal habitat in Mariposa Canyon, where some scattered large diameter trees occur. The elevation of the canyon floor is 3,900 ft, just within the range of this species. The proposed project area occurs in Survey Zone 3, which includes areas within the historic range of CFPO and has a low potential of occupancy (USFWS 2000). Furthermore, the proposed project is not within proposed CFPO critical habitat or within in a Draft Recovery Zone (USFWS 2003). No surveys of this area have been conducted, but protocol surveys would be conducted prior to construction (U.S. Department of Energy 2003).

### **Effects Determination**

Because there is a low likelihood of CFPO occupancy in this area and preconstruction surveys will be conducted, no impacts to this species beyond those discussed in the Final BA (HEG 2003) are anticipated. Therefore, the effects determination and proposed mitigation as discussed in the Final BA remain unchanged.

### **Lesser long-nosed bat (*Leptonycteris curasoae yerbabuenae*)-Endangered**

The lesser long-nosed bat (LLNB) is typically associated with their primary food source, flower nectar and fruit of columnar cacti and certain agave species. In addition to food availability, there must be suitable roosting within commuting distance of the food source. Currently, the longest known commute distance is about 30 mi (48 km). The closest known LLNB roost site is a cave in the Patagonia Mountains, approximately 18 mi (56 km) to the northeast.



While no columnar cacti occur in the proposed project corridor, a few agaves are present. It is unknown if these individual plants would be impacted by the proposed project, but any potentially disturbed agaves will be transplanted.

### **Effects Determination**

Because of the low number of agaves in the proposed project area, no impacts to this species beyond those discussed in the Final BA (HEG 2003) are anticipated. Therefore, the effects determination and proposed mitigation as discussed in the Final BA remain unchanged.

## **2. Disturbance in Proposed MSO Critical Habitat**

In November 2003, the USFWS proposed critical habitat for the MSO, including unit BR-W-13 in the Atascosa/Pajarito Mountains. The proposed Western Corridor crosses this unit of proposed critical habitat. The USFWS requested a calculation of permanent and temporary disturbance in this unit of critical habitat.

The calculations were based on the assumptions listed in the Final Roads Analysis (Section 1.4) (URS 2003), including: (1) temporary disturbance at structure locations would occur in an area within a 100-foot radius; (2) laydown areas were calculated as temporary disturbance; (3) the permanent area of disturbance at each structure site as 25 ft<sup>2</sup>; (4) proposed new roads would be maintained for maintenance (and thus were permanent disturbance); and (5) the average width of proposed new roads would be 12 feet wide.

Engineering data provided by TEP indicate 65 structures and 35,026 linear feet of new roads are proposed within unit BR-W-13 of proposed critical habitat. Therefore, based on the above assumptions, the proposed Western Corridor would permanently disturb 9.69 acres and temporarily disturb 46.85 acres of land within proposed MSO critical habitat.





## LITERATURE CITED

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- Brown, David E., ed. 1994. Biotic communities: Southwestern United States and Northwestern Mexico. University of Utah Press, Salt Lake City, UT. 342 pp.
- Ecosphere Environmental Services. 1992. A Range Study of *Coryphantha scheeri* var. *robustispina*. Final Report prepared for U.S. Bureau of Reclamation (Contract No. 1-CS-32-01950). Phoenix, Arizona.
- Harris Environmental Group, Inc. 2003. Final Biological Assessment of the Tucson Electric Power Sahuarita to Nogales Transmission Line, Western Corridor. November 2003. Harris Environmental Group, Inc. 156 pp.
- Mills, G.S. 1991. Miscellaneous notes on *Coryphantha scheeri* var. *robustispina*. Unpublished notes to U.S. Fish and Wildlife Service, Phoenix, Arizona.
- Phillips, A.M., and B.G. Phillips. 1981. Status report: *Coryphantha scheeri* var. *robustispina*. Office of Endangered Species, U. S. Fish and Wildlife Service, Albuquerque, New Mexico. Unpublished report.
- Roller, P. S. 1996. Distribution, growth, and reproduction of Pima pineapple cactus (*Coryphantha scheeri* Kuntz var. *robustispina* Schott). M.S. Thesis, Univ. Ariz., Tucson. 83 pp.
- URS 2003. Final Roads Analysis: TEP Sahuarita-Nogales Transmission Line Project. January 2003. URS Corporation.
- U. S. Department of Energy 2003. Tucson Electric Power Company (TEP) Sahuarita-Nogales Transmission Line Draft Environmental Impact Statement. Department of Energy (DOE/EIS-0336).
- USFWS 1993. Endangered and threatened wildlife and plants; Final Rule: determination of endangered status for the Pima pineapple cactus Federal Register 58:49875 - 49879.
- USFWS 2000. Recommended guidance for private landowners concerning the cactus ferruginous pygmy-owl.
- USFWS 2003. Cactus ferruginous pygmy-owl (*Glaucidium brasilianum cactorum*) Draft Recovery Plan. Albuquerque, NM. 164 pp. plus appendices.



## APPENDIX A

Plant species observed within the proposed TEP Gateway-Valencia 115k Transmission Line, Nogales, Arizona (25 February 2004).

Scientific Name	Common Name
<b>TREES</b>	
<i>Prosopis velutina</i>	velvet mesquite
<i>Quercus emoryi</i>	Emory oak
<i>Quercus oblongifolia</i>	Mexican blue oak
<b>SHRUBS AND CACTUS</b>	
<i>Agave sp.</i>	agave
<i>Baccharis sarothroides</i>	desert broom
<i>Calliandra eriophylla</i>	fairyduster
<i>Celtis pallida</i>	desert hackberry
<i>Chilopsis linearis</i>	desert willow
<i>Dalea greggii</i>	smoke bush
<i>Dasyllirion wheeleri</i>	sotol
<i>Echinocereus fendleri</i>	hedgehog cactus
<i>Echinocereus pectinatus</i>	rainbow cactus
<i>Eysenhardtia polystachya</i>	kidney wood
<i>Ferocactus wislizenii</i>	barrel cactus
<i>Gutierrezia sarothrae</i>	snakeweed
<i>Isocoma tenuisecta</i>	burroweed
<i>Mammillaria spp.</i>	pincushion cactus
<i>Mimosa biuncifera</i>	wait-a-minute
<i>Nicotiana glauca</i>	tree tobacco
<i>Nolina microcarpa</i>	beargrass
<i>Opuntia sp.</i>	prickly pear
<i>Opuntia acanthocarpa</i>	buckthorn cholla
<i>Yucca elata</i>	soaptree yucca
<i>Ziziphus obtusifolia</i>	graythorn
<b>VINES</b>	
<i>Cucurbita digitata</i>	coyote gourd

**APPENDIX A (continued)**

Plant species observed within the proposed TEP Gateway-Valencia 115k Transmission Line, Nogales, Arizona (25 February 2004).

<b>FORBS</b>	
<i>Amaranthus sp</i>	amaranth
<i>Ambrosia sp.</i>	ragweed
<i>Amsinckia sp.</i>	fiddle neck
<i>Descurainia sp.</i>	tansy mustard
<i>Eriogonum sp.</i>	buckwheat
<i>Erodium cicutarium</i>	storkbill, filaree
<i>Eschscholzia mexicana</i>	Mexican poppy
<i>Helianthus sp.</i>	sunflower
<i>Lepidium sp.</i>	peppergrass
<i>Liliaceae</i>	lily
<i>Lupinus sp.</i>	lupine
<i>Oenothera sp.</i>	evening primrose
<i>Phacelia sp.</i>	phacelia
<i>Physalis sp.</i>	ground cherry
<i>Proboscidea sp.</i>	devils claw
<i>Sisymbrium irio</i>	london rocket
<i>Solanum sp.</i>	nightshade
<i>Verbena sp.</i>	verbena
<b>GRASSES</b>	
<i>Andropogon</i>	blue stem
<i>Aristida sp.</i>	three awn
<i>Bothriochloa barbinodis</i>	cane beard grass
<i>Bouteloua sp.</i>	grama
<i>Bouteloua curtipendula</i>	side oats grama
<i>Bouteloua hirsuta</i>	hairy grama
<i>Eragrostis sp.</i>	lovegrass
<i>Eragrostis lehmanniana</i>	Lehmann lovegrass
<i>Eragrostis megastachya</i>	stinkgrass
<i>Lycurus phleoides</i>	wolftail
<i>Muhlenbergia emersleyi</i>	bullgrass
<i>Panicum sp.</i>	
<i>Setaria sp.</i>	foxtail

**APPENDIX B**

Federally Listed and Proposed Species under jurisdiction of the U.S. Fish and Wildlife Service in Santa Cruz County, Arizona as of 25 February 2004, excluded from further consideration.

COMMON NAME	SCIENTIFIC NAME	STATUS	HABITAT	JUSTIFICATION
<b>PLANTS</b>				
Canelo Hills ladies' tresses	<i>Spiranthes delitescens</i>	Endangered	Finely grained, highly organic, saturated soils of cienegas. Potential habitat occurs in Sonora, Mexico, but no populations have been found.	No habitat present.
Huachuca water umbel	<i>Lilaeopsis schaffneriana</i> ssp. <i>recurva</i>	Endangered	An emergent aquatic plant that requires marshy wetlands.	No habitat present.
<b>FISH</b>				
Desert pupfish	<i>Cyprinodon macularius</i>	Endangered	Shallow springs, small streams, and marshes. Tolerates saline and warm water.	No habitat present.
Gila chub	<i>Gila intermedia</i>	Proposed Endangered	Small streams and cienegas; prefer deeper pools with cover.	No habitat present.
Gila topminnow	<i>Poeciliopsis occidentalis occidentalis</i>	Endangered	Small streams, springs, and cienegas vegetated shallows.	No habitat present.
Sonora chub	<i>Gila ditaenia</i>	Threatened	Perennial and intermittent small to moderate streams with boulders and cliffs.	No habitat present.
<b>AMPHIBIANS</b>				
Chiricahua leopard frog	<i>Rana chiricahuensis</i>	Threatened	Streams, rivers, backwaters, ponds, and stock tanks that are mostly free from introduced fish, crayfish, and bullfrogs	No habitat present.
Sonoran tiger salamander	<i>Ambystoma tigrinum stebbinsi</i>	Endangered	Stock tanks and impounded cienegas in San Rafael Valley, Huachuca Mountains at 4,000-6,300 ft.	No habitat present

**APPENDIX B (continued)**

Federally Listed and Proposed Species under jurisdiction of the U.S. Fish and Wildlife Service in Santa Cruz County, Arizona as of 25 February 2004, excluded from further consideration.

<b>BIRDS</b>				
Bald eagle	<i>Haliaeetus leucocephalus</i>	Threatened	Large trees or cliffs near water (reservoirs, rivers, and streams) with abundant prey.	No habitat present.
California brown pelican	<i>Pelecanus occidentalis californicus</i>	Endangered	Coastal land and islands; species is found around many Arizona lakes and rivers.	No habitat present.
Masked bobwhite	<i>Colinus virginianus ridgewayi</i>	Endangered	Only known Arizona population has been reintroduced on Buenos Aires Natl. Wildl. Refuge	ROW is outside of known range.
Southwestern willow flycatcher	<i>Empidonax traillii eximius</i>	Endangered	Cottonwood/willow and tamarisk vegetation communities along rivers and streams	No habitat present.
Northern apolomado falcon	<i>Falco femoralis septentrionalis</i>	Endangered	Grassland and savannah habitats.	No recent confirmed reports for Arizona.
<b>MAMMALS</b>				
Ocelot	<i>Felis pardalis</i>	Endangered	Prefers humid tropical & sub-tropical habitats; typically found at higher elevations.	ROW is outside of known range.
Jaguar	<i>Panthera onca</i>	Endangered	Remote areas in Sonoran desertscrub up through subalpine conifer forest.	No habitat present.
Mexican gray wolf	<i>Canis lupus baileyi</i>	Endangered	Remote chaparral, woodland, and forested areas above 4,000 ft.	No habitat present.